

CLAIMS

1. Roll forming apparatus adapted to form, from sheet metal strip, metal frame members for use in building construction, said apparatus including lip forming members engageable to convert a roll-formed U-section channel profile to a C-section channel profile, and said apparatus adapted to form the said U-section and C-section channel profiles simultaneously on the same sheet metal strip.
2. Roll forming apparatus according to claim 1 further including channel-width adjustment means adapted to adjust the width of a channel profile at selected regions during roll forming.
3. Roll forming apparatus according to claim 2 wherein the channel width adjustment means includes one or more rollers adapted to form a groove or grooves in the channel base, and at least one of said rollers adjustable to increase the groove depth.
4. Roll forming apparatus according to any one of claims 1 to 3 further including a moveable operational unit including one or more functional components each adapted to produce a specified feature on the metal frame member during roll forming.
5. Roll forming apparatus according to claim 4, wherein the operational unit is servo-controlled.
6. Roll forming apparatus according to either claim 4 or claim 5 wherein the or each functional component includes at least one hole punch, a guillotine and a notching unit for removing a section of a base of the channel.

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7. Roll forming apparatus according to any one of the preceding claims further including computing means adapted to control and synchronise roll forming, lip-forming, groove-forming, and the operational unit including all functional components.

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8. A metal frame member for use in building construction said frame member having predominately a C-section channel profile with at least one portion having a U-section channel profile, and wherein one or more of said U-section channel profiles is swaged or narrowed in relation to the C-section channel profile.

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9. A frame assembly for use in building construction, the assembly including a plurality of metal frame members, portions of selected frame members having a U-section channel profile swaged or narrowed portion adapted to engage within the sides of a U-section channel profile of another frame member substantially without deforming the profile of that other frame member.

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10. A frame assembly according to claim 9 including a plurality of first metal frame members forming studs and a plurality of second metal frame members forming nogs.

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11. A frame assembly according to claim 10 including at least one assembly junction including:

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- a stud having a U-section channel profile swaged or narrowed portion,
- a first nog having a U-section channel profile end portion with a base of the channel cut away in this U-section channel portion such that channel sides at this portion are engageable over the U-section channel profile swaged or narrowed portion of the stud, and

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- a second nog having a U-section channel profile swaged or narrowed end portion engageable within the U-section channel profile swaged or narrowed portion of the stud.

- 5 12. A method of constructing a metal frame member from a sheet metal strip on roll forming apparatus, the method including forming U-section and C-section channel profiles simultaneously on the same sheet metal strip.
- 10 13. A method of constructing a building frame assembly, said method including the steps of:
- recording data defining a unit area in which the frame assembly is to fit,
 - 15 - processing the data on computing means to design the frame assembly to fit the unit area,
 - controlling the operation of roll forming apparatus adapted to form channel-shaped metal frame members from sheet metal strip, using the processed data from the computing means, to produce frame members formed and cut ready for assembly to produce the required design of building frame assembly.
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- 25 14. A method of constructing a building frame assembly according to claim 13 wherein the data defining the unit area includes data from the architectural/design drawings such that the frame assembly designed is adapted to accommodate all utility and architectural features required in the unit area.
- 30 15. A method of constructing a building frame assembly according to claim 14 wherein the data further includes physical measurements of actual dimensions of the unit area.

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16. Roll forming apparatus substantially as herein described and with reference to Figure 4.
17. A metal frame member substantially as herein described and with reference to the accompanying drawings.
18. A building frame assembly substantially as herein described and with reference to the accompanying drawings.
19. A method of forming a metal frame member substantially as herein described and with reference to the accompanying drawings.
20. A method of constructing a building frame assembly substantially as herein described and with reference to the accompanying drawings.

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